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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XB050

Takes of Marine Mammals Incidental to Specified Activities; Russian River Estuary
Management Activities

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; proposed incidental harassment authorization; request for comments.

SUMMARY: NMFS has received an application from the Sonoma County Water Agency (SCWA) for an Incidental Harassment Authorization (IHA) to take marine mammals incidental to Russian River estuary management activities. Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is requesting comments on its proposal to issue an IHA to SCWA to take, by Level B Harassment only, several species of marine mammals during the specified activity.

DATES: Comments and information must be received no later than [insert date 30 days after date of publication in the FEDERAL REGISTER].

ADDRESSES: Comments on the application should be addressed to Michael Payne, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910. The mailbox address for providing email comments is ITP.Laws@noaa.gov. NMFS is not responsible for e-mail comments sent to addresses other than the one provided here. Comments sent via e-mail, including all attachments, must not exceed a 10-megabyte file size.

Instructions: All comments received are a part of the public record. All Personal Identifying Information (e.g., name, address) voluntarily submitted by the commenter may be publicly accessible. Do not submit Confidential Business Information or otherwise sensitive or protected information.

A copy of the application containing a list of the references used in this document may be obtained by writing to the address specified above, telephoning the contact listed below (see FOR FURTHER INFORMATION CONTACT), or visiting the internet at:

<http://www.nmfs.noaa.gov/pr/permits/incidental.htm>. Supplemental documents provided by SCWA may be found at the same web address, as can NMFS' Environmental Assessment (2010) and associated Finding of No Significant Impact, prepared pursuant to the National Environmental Policy Act. Documents cited in this notice may also be viewed, by appointment only, at the aforementioned physical address.

FOR FURTHER INFORMATION CONTACT: Ben Laws, Office of Protected Resources, NMFS, (301) 427-8401.

SUPPLEMENTARY INFORMATION:

Background

Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 et seq.) direct the Secretary of Commerce to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed authorization is published in the Federal Register to provide public notice and initiate a 30-day comment period.

Authorization for incidental taking shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s), will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant), and if the permissible methods of taking and requirements pertaining to the mitigation, monitoring and reporting of such takings are set forth. NMFS has defined 'negligible impact' in 50 CFR 216.103 as "...an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival."

Section 101(a)(5)(D) of the MMPA established an expedited process by which citizens of the United States can apply for an authorization to incidentally take small numbers of marine mammals by Level B harassment as defined below. Section 101(a)(5)(D) establishes a 45-day time limit for NMFS review of an application followed by a 30-day public notice and comment period on any proposed authorizations for the incidental harassment of marine mammals. Within 45 days of the close of the comment period, NMFS must either issue or deny the authorization. If authorized, an IHA may be effective for a maximum of one year from date of issuance.

Except with respect to certain activities not pertinent here, the MMPA defines 'harassment' as: "any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild [Level A harassment]; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering [Level B harassment]."

Summary of Request

NMFS received an application on January 27, 2012 from SCWA requesting issuance of an IHA for the taking, by Level B harassment only, of marine mammals incidental to activities conducted in management of the Russian River estuary in Sonoma County, California. SCWA was first issued an IHA, valid for a period of one year, on April 1, 2010 (75 FR 17382) and was subsequently issued a second IHA for incidental take associated with the same activities on April 21, 2011 (76 FR 23306). The proposed activities include management of a naturally-formed barrier beach at the mouth of the river in order to minimize potential for flooding adjacent to the Russian River estuary and enhance habitat for juvenile salmonids, and biological and physical monitoring of the estuary. Flood control-related breaching of barrier beach at the mouth of the river may include artificial breaches, as well as construction and maintenance of a lagoon outlet channel. The latter activity, an alternative management technique conducted to mitigate impacts of flood control on rearing habitat for Endangered Species Act (ESA)-listed salmonids, occurs only from May 15 through October 15 (hereafter, the “lagoon management period”). Species known from the haul-out at the mouth of the Russian River or from peripheral haul-outs, and considered in this document, include the harbor seal (*Phoca vitulina*), California sea lion (*Zalophus californianus*), and northern elephant seal (*Mirounga angustirostris*).

Breaching of naturally-formed barrier beach at the mouth of the Russian River requires the use of heavy equipment (e.g., bulldozer, excavator) and increased human presence. As a result, pinnipeds hauled out on the beach may exhibit behavioral responses that indicate incidental take by Level B harassment under the MMPA. Numbers of harbor seals, the species most commonly encountered at the haul-out, have been recorded extensively since 1972 at the haul-out near the mouth of the Russian River (the Jenner haul-out). Based on these monitoring data and SCWA’s estimated number of management events, SCWA is requesting authorization

to incidentally harass up to 2,956 harbor seals, 39 California sea lions, and 20 northern elephant seals during the 1-year time span of the proposed IHA, from April 21, 2012 to April 20, 2013.

Description of the Specified Activity

The estuary is located about 97 km (60 mi) northwest of San Francisco in Sonoma County, near Jenner, California (see Figure 1 of SCWA's application). The Russian River watershed encompasses 3,847 km² (1,485 mi²) in Sonoma, Mendocino, and Lake Counties. The mouth of the Russian River is located at Goat Rock State Beach (see Figure 2 of SCWA's application); the estuary extends from the mouth upstream approximately 10 to 11 km (6-7 mi) between Austin Creek and the community of Duncans Mills (Heckel, 1994). The proposed action involves management of the estuary to prevent flooding while preventing adverse modification to critical habitat for ESA-listed salmonids. During the lagoon management period, this involves construction and maintenance of a lagoon outlet channel that would facilitate formation of a perched lagoon. A perched lagoon, which is an estuary closed to tidal influence in which water surface elevation is above mean high tide, would reduce flooding while maintaining beneficial conditions for juvenile salmonids. Additional breaches of barrier beach may be conducted for the sole purpose of reducing flood risk. SCWA's proposed activity was described in detail in NMFS' notice of proposed authorization prior to the current IHA (76 FR 14924; March 18, 2011); please see that document for a detailed description of SCWA's estuary management activities.

Within the Russian River watershed, the U.S. Army Corps of Engineers (Corps), SCWA and the Mendocino County Russian River Flood Control and Water Conservation Improvement District (District) operate and maintain federal facilities and conduct activities in addition to the estuary management, including flood control, water diversion and storage, instream flow

releases, hydroelectric power generation, channel maintenance, and fish hatchery production. The Corps, SCWA, and the District conducted these activities for many years before salmonid species in the Russian River were protected under the ESA. Upon determination that these actions were likely to affect ESA-listed salmonids, as well as designated critical habitat for these species, formal consultation under section 7 of the ESA was initiated. In 2008, NMFS issued a Biological Opinion (BiOp) for Water Supply, Flood Control Operations, and Channel Maintenance conducted by the Corps, SCWA, and the District in the Russian River watershed (NMFS, 2008). This BiOp found that the activities – including SCWA’s estuary management activities – authorized by the Corps and undertaken by SCWA and the District, if continued in a manner similar to recent historic practices, were likely to jeopardize the continued existence of ESA-listed salmonids and were likely to adversely modify critical habitat.

If a project is found to jeopardize a species or adversely modify its critical habitat, NMFS must develop a Reasonable and Prudent Alternative (RPA) to the proposed project, in coordination with the federal action agency and any applicant. A component of the RPA described in the 2008 BiOp requires SCWA to collaborate with NMFS and modify their estuary water level management in order to reduce marine influence (i.e., high salinity and tidal inflow) and promote a higher water surface elevation in the estuary in order to enhance the quality of rearing habitat for juvenile salmonids. A program of potential incremental steps prescribed to reach that goal includes adaptive management of the outlet channel. SCWA is also required to monitor the response of water quality, invertebrate production, and salmonids in and near the estuary to water surface elevation management in the estuary-lagoon system.

The analysis contained in the BiOp found that maintenance of lagoon conditions was necessary only for the lagoon management period. See NMFS’ BiOp (2008) for details of that

analysis. As a result of that determination, there are three components to SCWA's estuary management activities: (1) lagoon outlet channel management, during the lagoon management period only, required to accomplish the dual purposes of flood risk abatement and maintenance of juvenile salmonid habitat; (2) traditional artificial breaching, with the sole goal of flood risk abatement; and (3) physical and biological monitoring. Please see the previously referenced Federal Register notice (76 FR 14924; March 18, 2011) for detailed discussion of these activities.

Jetty Study

In addition to the previously described activities, SCWA proposes to conduct new monitoring work at the mouth of the Russian River during the period of this proposed IHA. This additional activity comprises a plan to study the effects of a historical, dilapidated jetty on the formation and maintenance of the Russian River estuary, as required under RPA 2 of the 2008

BiOp. Through several phases from 1929-1948, the jetty and associated seawall, roadway, and

railroad were constructed, reinforced and then abandoned by various entities. The plan for study of the jetty is described in greater detail in SCWA's "Feasibility of Alternatives to the Goat Rock State Beach Jetty for Managing Lagoon Water Surface Elevations – A Study Plan" (ESA PWA, 2011a), available online (see Addresses).

NMFS' BiOp determined that salmonid estuarine habitat may be improved by managing the Russian River estuary as a perched, freshwater lagoon and, therefore, stipulates as a RPA to

existing conditions that the estuary be managed to achieve such conditions between May 15th and October 15th. In recognition of the complexity and uncertainty inherent in attempting to manage conditions in a dynamic beach environment, the BiOp stipulates that the estuarine water surface elevation RPA be managed adaptively, meaning that it should be planned, implemented, and then iteratively refined based on experience gained from implementation. The first phase of adaptive management, which has been implemented since 2010, is limited to outlet channel management (ESA PWA, 2011b). The second phase requires study of and consideration of alternatives to the jetty (e.g., complete removal, partial removal).

The jetty, which is embedded in the barrier beach, may significantly affect some of the physical processes which determine lagoon water surface elevations. The proposed study would analyze the effects of the jetty on beach permeability and sand storage and transport. These physical processes are affected by the jetty, and, in turn, may affect seasonal water surface elevations and flood risk. Evaluating and quantifying these linkages will inform the development and evaluation of management alternatives for the jetty.

The goal of the proposed study is to evaluate the feasibility of modifying or removing the jetty to improve the likelihood of achieving the target lagoon water surface elevations. To accomplish this goal, the study objectives include: (1) describe the extent and composition of the jetty; (2) understand the jetty's effects on the physical processes which partially determine lagoon water surface elevations, including beach permeability, sand storage, and sand transport; (3) evaluate the jetty's role in flood risk to property adjacent to the estuary; and (4) Recommend an approach for developing and analyzing jetty alternatives, such as jetty removal, partial removal, jetty notching and other uses of the jetty which may help achieve target lagoon water surface elevations.

The study would involve delineation of two study transects perpendicular to the beach barrier (see Figure 5 of SCWA's application). To study water seepage rates, six monitoring wells would be constructed on the barrier beach of the estuary (three per transect); these would be installed using a hollow stem auger drill rig and two inch diameter casings. Wells would be capped and buried below the sand surface to prevent vandalism and tourist interaction. The well locations were chosen to minimize potential for disturbance of pinnipeds using the Jenner haul-out (i.e., greater than 200 ft south of the actual haul-out location and on the opposite side of the jetty). No personnel or heavy equipment would need to approach or transit the haul-out, as is required for other estuary management activities. The noise generated from the drill is estimated to be 85-90 db re: 20 μ Pa at a distance of 20 ft. Given a maximum estimated source level of 90 dB (at 20 ft) and the distance between planned location of the wells and the haul-out, received sound levels at the haul-out would be below the level at which NMFS considers harassment from airborne sound to be a possibility for harbor seals (90 dB re: 20 μ Pa). It is unlikely that harassment of pinnipeds would result from this activity; however, SCWA would implement standard mitigation measures as for other planned activities.

In order to better understand the characteristics of the barrier beach substrate and the location and composition of buried portions of the jetty and associated structures, geophysical surveys would be conducted along the barrier beach. Seismic refraction and electrical resistivity profiling would be conducted simultaneously. Seismic refraction involves pounding an impact hammer on the surface of the beach, creating a sound wave that resonates through the sand bar. It is not believed that this activity would generate sound at levels sufficient to be detected by seals hauled out along the beach; in fact, it is likely that sound waves generated by ocean waves crashing on the beach will be a source of interference when trying to detect the sound waves

generated by the impact hammer (i.e., hauled-out seals would not be able to distinguish between sound pressure waves felt as a result of surf as opposed to seismic refraction). Electric resistivity profiling involves placing probes down into the substrate and would not produce any physical or auditory disturbance to the pinnipeds on the beach. This profile would be completed by a staff of up to three personnel for a period of 2 consecutive days. Ground-penetrating radar (GPR) profiles would also be completed near the jetty in perpendicular transects 30 to 40 feet long. The profiles would be collected by two personnel travelling on foot and should only take 1 day to complete.

Once the initial geophysical surveys have been completed, additional surface electromagnetic profiles will be collected along the barrier beach in order to explore how the jetty impacts beach seepage relative to the natural beach berm. Collecting these electromagnetic profiles will involve 2-3 personnel walking along the barrier beach using either a hand-held conductivity meter or a pull-along capacitively coupled Ohm-Mapper system cable with sensors. Neither of these instruments generates sound that could disturb pinnipeds on the beach.

Description of Marine Mammals in the Area of the Specified Activity

Harbor seals are the most common species inhabiting the haul-out at the mouth of the Russian River (Jenner haul-out). California sea lions and northern elephant seals have also been observed infrequently in the project area. In addition to the Jenner haul-out, there are eight peripheral haul-outs nearby (see Figure 4 of SCWA's application). These include North Jenner and Odin Cove to the north; Pocked Rock, Kabemali, and Rock Point to the south; and Penny Logs, Patty's Rock, and Chalanchawi upstream within the estuary.

Harbor Seals

Harbor seals in the eastern Pacific inhabit near-shore coastal and estuarine areas from Baja California, Mexico, to the Pribilof Islands in Alaska. In California, approximately 400-600 harbor seal haul-outs are widely distributed along the mainland and on offshore islands, including intertidal sandbars, rocky shores and beaches (Hanan, 1996).

The harbor seal population in California is estimated at approximately 34,233 (Carretta et al., 2007). Counts of harbor seals in California showed a rapid increase from approximately 1972 to 1990, though net production rates appeared to decline from 1982 to 1994. The decrease in population growth rate has occurred at the same time as a decrease in human-caused mortality and may be an indication that the population is reaching its environmental carrying capacity.

In general, harbor seals do not undertake long migrations, but do travel 300-500 km on occasion to find food or suitable breeding areas (Herder, 1986). Harbor seals are rarely found in pelagic waters and typically stay within the tidal and intertidal zones. On land, harbor seals haul out on rocky outcrops, mudflats, sandbars and sandy beaches with unrestricted access to water and with minimal human presence. Haul-out sites are important as resting sites for harbor seals, who feed opportunistically in shallow waters on fish, crustaceans, and cephalopods. Harbor seals are typically solitary while foraging, although small groups have been observed. They normally choose isolated sites for pupping, which normally occurs at the Russian River from March until late June, and sometimes into early July. The Jenner haul-out is the largest in Sonoma County.

A substantial amount of monitoring effort has been conducted at the Jenner haul-out and surrounding areas. Concerned local residents formed the Stewards' Seal Watch Public Education Program in 1985 to educate beach visitors and monitor seal populations. State Parks Volunteer Docents continue this effort towards safeguarding local harbor seal habitat. On weekends during the pupping and molting season (approximately March-August), volunteers conduct public

outreach and record the numbers of visitors and seals on the beach, other marine mammals observed, and the number of boats and kayaks present.

Ongoing monthly seal counts at the Jenner haul-out were begun by J. Mortenson in January 1987, with additional nearby haul-outs added to the counts thereafter. In addition, local resident E. Twohy began daily observations of seals and people at the Jenner haul-out in November 1989. These datasets note whether the mouth at the Jenner haul-out was opened or closed at each observation, as well as various other daily and annual patterns of haul-out usage (Mortenson and Twohy, 1994). Recently, SCWA began regular baseline monitoring of the haul-out as a component of its estuary management activity. Table 1 shows average daily numbers of seals observed at the mouth of the Russian River from 1993-2005 (Mortenson and Twohy) and from 2009-11 (SCWA).

Table 1. Average daily number of seals observed at Russian River mouth for each month, 1993-2005; 2009-11

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1993	140	219	269	210	203	238	197	34	8	38	78	163
1994	138	221	243	213	208	212	246	98	26	31	101	162
1995	133	270	254	261	222	182	216	74	37	24	38	148
1996	144	175	261	247	157	104	142	65	17	29	76	139
1997	154	177	209	188	154	119	186	58	20	29	30	112
1998	119	151	192	93	170	213	232	53	33	21	93	147
1999	161	170	215	210	202	128	216	98	57	20	74	123
2000	151	185	240	180	158	245	256	63	46	50	86	127
2001	155	189	161	168	135	212	275	75	64	20	127	185
2002	117	12	20	154	134	213	215	89	43	26	73	126
2003	-	1	26	161	164	222	282	100	43	51	109	116
2004	2	5	39	180	202	318	307	35	40	47	68	61
2005	0	7	42	222	220	233	320	145	-	-	-	-
Mean, 1993-2005	118	137	167	191	179	203	238	76	36	32	79	134
2009-11	96	89	146	131	119	134	237	108	36	36	90	45

Data from 1993-2005 adapted from Mortenson and Twohy, 1994 and E. Twohy unpublished data. Data from 2009-11 collected by SCWA.

Months represented by dash indicate periods where data were missing or incomplete.

The number of seals present at the Jenner haul-out generally declines during bar-closed conditions (Mortenson, 1996). SCWA's pinniped monitoring efforts from 1996 to 2000 focused

on artificial breaching activities and their effects on the Jenner haul-out. Seal counts and disturbances were recorded from one to two days prior to breaching, the day of breaching, and the day after breaching (Merritt Smith Consulting, 1997, 1998, 1999, 2000; SCWA and Merritt Smith Consulting, 2001). In each year, the trend observed was that harbor seal numbers generally declined during a beach closure and increased the day following an artificial breaching event. Heckel (1994) speculated that the loss of easy access to the haul-out and ready escape to the sea during bar-closed conditions may account for the lower numbers. Table 2 shows average daily seal counts recorded during SCWA monitoring of breaching events from 1996-2000 and 2009-10, representing bar-closed conditions, when seal numbers decline.

Table 2. Average number of harbor seals observed at the mouth of the Russian River during breaching events (i.e., bar-closed conditions) by month.

Year	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
1996-2000	173	103	100	75	17	5	22	11
2009	-	-	91	-	-	13	22	-
2010	-	-	-	105	-	19	13	-

Dashes represent months when no estuary management events occurred.

Mortenson (1996) observed that pups were first seen at the Jenner haul-out in late March, with maximum counts in May. In this study, pups were not counted separately from other age classes at the haul-out after August due to the difficulty in discriminating pups from small yearlings. From 1989 to 1991, Hanson (1993) observed that pupping began at the Jenner haul-out in mid-April, with a maximum number of pups observed during the first two weeks of May. This corresponds with the peaks observed at Point Reyes, where the first viable pups are born in March and the peak is the last week of April to early May (SCWA, 2011). Based on this information, pupping season at the Jenner haul-out is conservatively defined here as March 15 to June 30.

California Sea Lions

California sea lions range from southern Mexico to British Columbia, Canada. The entire U.S. population has been estimated at 238,000, and grew at a rate of approximately 6 percent annually between 1975 and 2005 (Carretta et al., 2007). Sea lions can be found at sea from the surf zone out to nearshore and pelagic waters. On land, sea lions are found resting and breeding in groups of various sizes, and haul out on rocky surfaces and outcroppings and beaches, as well as on manmade structures such as jetties. Sea lions prefer haul-out sites and rookeries near abundant food supplies, with easy access to water, although they may occasionally travel up rivers and bays in search of food.

California sea lions exhibit seasonal migration patterns organized around their breeding activity. Sea lions breed at large rookeries in the Channel Islands in southern California, and on both sides of the Baja California peninsula, typically from May to August. Females tend to remain close to the rookeries throughout the year, while males migrate north after the breeding season in the late summer before migrating back south to the breeding grounds in the spring (CDFG, 1990). No established rookeries are known north of Point Reyes, California, but large numbers of subadult and non-breeding or post-breeding male California sea lions are found throughout the Pacific Northwest. There is a mean seasonal pattern of peak numbers occurring in the northwest during fall, but local areas show high annual and seasonal variability. Sea lions feed on fish and cephalopods. Although solitary feeders, sea lions often hunt in groups, which can vary in size according to the abundance of prey (CDFG, 1990).

Solitary California sea lions have occasionally been observed at or in the vicinity of the haul-out (Merritt Smith Consulting, 1999, 2000). Individual sea lions were observed near the mouth of the Russian River in November and December of 2009; a single individual was observed hauled-out on one occasion in November 2009. Juvenile sea lions were observed

during the summer of 2009 at the Patty's Rock haul-out, and some sea lions were observed during monitoring of peripheral haul-outs in October 2009. The occurrence of individual California sea lions in the action area may generally occur from September through April, but is infrequent and sporadic.

Northern Elephant Seals

Populations of northern elephant seals in the U.S. and Mexico are derived from a few tens or hundreds of individuals surviving in Mexico after being nearly hunted to extinction (Stewart et al., 1994). Given the recent derivation of most rookeries, no genetic differentiation would be expected. Although movement and genetic exchange continues between rookeries, most elephant seals return to their natal rookeries when they start breeding (Huber et al., 1991). The California breeding population is now demographically isolated from the Baja California population and is considered to be a separate stock. Based on the estimated 35,549 pups born in California in 2005, the California stock was estimated at approximately 124,000 (Carretta et al. 2009). Based on trends in pup counts, northern elephant seal colonies were continuing to grow in California through 2005 (Carretta et al., 2009).

Northern elephant seals breed and give birth in California and Baja California, Mexico, primarily on offshore islands from December to March (Stewart et al., 1994; Stewart and Huber, 1993). Gestation lasts around 11 months, and pups are born in early winter from December to January. Northern elephant seals are polygamous; males establish dominance over large groups of females during the breeding season. Males feed near the eastern Aleutian Islands and in the Gulf of Alaska, and females feed further south (Stewart and Huber, 1993; Le Boeuf et al., 1993). Adults return to land between March and August to molt, with males returning later than

females. Adults return to their feeding areas again between their spring/summer molting and their winter breeding seasons.

Censuses of pinnipeds at the mouth of the Russian River have been taken at least semi-monthly since 1987. Elephant seals were noted from 1987-95, with one or two elephant seals typically counted during May censuses, and occasional records during the fall and winter (Mortenson and Follis, 1997). A single, tagged northern elephant seal sub-adult was present at the Jenner haul-out from 2002-07. This individual seal, which was observed harassing harbor seals also present at the haul-out, was generally present during molt and again from late December through March. A single juvenile elephant seal was observed at the Jenner haul-out in June 2009. The occurrence of individual northern elephant seals in the action area has generally been infrequent and sporadic from December through March in the past 10 years.

Potential Effects of the Specified Activity on Marine Mammals

A significant body of monitoring data exists for pinnipeds at the mouth of the Russian River. In addition, pinnipeds have co-existed with regular estuary management activity for decades, as well as with regular human use activity at the beach, and are likely habituated to human presence and activity. Nevertheless, SCWA's estuary management activities have the potential to harass pinnipeds present on the beach. During breaching operations, past monitoring has revealed that some or all of the seals present typically move or flush from the beach in response to the presence of crew and equipment, though some may remain hauled-out. No stampeding of seals – a potentially dangerous occurrence in which large numbers of animals succumb to mass panic and rush away from a stimulus – has been documented since SCWA developed protocols to prevent such events in 1999. While it is likely impossible to conduct required estuary management activities without provoking some response in hauled-out animals,

precautionary mitigation measures, described later in this document, ensure that animals are gradually apprised of human approach. Under these conditions, seals typically exhibit a continuum of responses, beginning with alert movements (e.g., raising the head), which may then escalate to movement away from the stimulus and possible flushing into the water. Flushed seals typically re-occupy the haul-out within minutes to hours of the stimulus. In addition, eight other haul-outs exist nearby that may accommodate flushed seals. In the absence of appropriate mitigation measures, it is possible that pinnipeds could be subject to injury, serious injury, or mortality, likely through stampeding or abandonment of pups.

However, based on a significant body of site-specific data, harbor seals are unlikely to sustain any harassment that may be considered biologically significant. Individual animals would, at most, flush into the water in response to maintenance activities but may also simply become alert or move across the beach away from equipment and crews. California sea lions and northern elephant seals have been observed as less sensitive to stimulus than harbor seals during monitoring at numerous other sites. For example, monitoring of pinniped disturbance as a result of abalone research in the Channel Islands showed that while harbor seals flushed at a rate of 69 percent, California sea lions flushed at a rate of only 21 percent. The rate for elephant seals declined to 0.1 percent (VanBlaricom, 2011). In the unlikely event that either of these species is present during management activities, they would be expected to display a minimal reaction to maintenance activities – less than that expected of harbor seals.

Although the Jenner haul-out is not known as a primary pupping beach, pups have been observed during the pupping season; therefore, NMFS has evaluated the potential for injury, serious injury, or mortality to pups. There is a lack of published data regarding pupping at the mouth of the Russian River, but SCWA monitors have observed pups on the beach. No births

were observed during monitoring in 2010-11, but were inferred based on signs indicating pupping (e.g., blood spots on the sand, birds consuming possible placental remains). Pup injury or mortality would be most likely to occur in the event of extended separation of a mother and pup, or trampling in a stampede. As discussed previously, no stampedes have been recorded since development of appropriate protocols in 1999. Any California sea lions or northern elephant seals present would be independent juveniles or adults; therefore, analysis of impacts on pups is not relevant for those species. Pups less than 1 week old are characterized by being up to 15 kg, thin for their body length, or having an umbilicus or natal pelage.

Similarly, the period of mother-pup bonding, critical time needed to ensure pup survival and maximize pup health, is not expected to be impacted by estuary management activities. Harbor seal pups are extremely precocious, swimming and diving immediately after birth and throughout the lactation period, unlike most other phocids which normally enter the sea only after weaning (Lawson and Renouf, 1985; Cottrell et al., 2002; Burns et al., 2005). Lawson and Renouf (1987) investigated harbor seal mother-pup bonding in response to natural and anthropogenic disturbance. In summary, they found that the most critical bonding time is within minutes after birth. As described previously, the peak of pupping season is typically concluded by mid-May, when the lagoon management period begins. As such, it is expected that mother-pup bonding would likely be concluded as well. The number of management events during the months of March and April has been relatively low in the past, and the breaching activities occur in a single day over several hours. In addition, mitigation measures described later in this document further reduce the likelihood of any impacts to pups, whether through injury or mortality or interruption of mother-pup bonding.

Based on extensive monitoring data, NMFS has preliminarily determined that impacts to hauled-out pinnipeds during estuary management activities would be behavioral harassment of limited duration (i.e., less than one day) and limited intensity (i.e., temporary flushing at most). Stampeding, and therefore injury or mortality, is not expected – nor been documented – in the years since appropriate protocols were established (see “Mitigation” for more details). Further, the continued, and increasingly heavy, use of the haul-out despite decades of breaching events indicates that abandonment of the haul-out is unlikely.

Anticipated Effects on Habitat

The purposes of the estuary management activities are to improve summer rearing habitat for juvenile salmonids in the Russian River estuary and/or to minimize potential flood risk to properties adjacent to the estuary. These activities would result in temporary physical alteration of the Jenner haul-out, but are essential to conserving and recovering endangered salmonid species, as prescribed by the BiOp. These salmonids are themselves prey for pinnipeds. In addition, with barrier beach closure, seal usage of the beach haul-out declines, and the three nearby river haul-outs may not be available for usage due to rising water surface elevations. Breaching of the barrier beach, subsequent to the temporary habitat disturbance, would likely increase suitability and availability of habitat for pinnipeds. Biological and water quality monitoring would not physically alter pinniped habitat. Please see the previously referenced Federal Register notice (76 FR 14924; March 18, 2011) for a more detailed discussion of anticipated effects on habitat.

During SCWA’s pinniped monitoring associated with artificial breaching activities from 1996 to 2000, the number of harbor seals hauled out declined when the barrier beach closed and then increased the day following an artificial breaching event (Merritt Smith Consulting, 1997,

1998, 1999, and 2000; SCWA and Merritt Smith Consulting, 2001). This response to barrier beach closure followed by artificial breaching is anticipated to continue. However, it is possible that the number of pinnipeds using the haul-out could decline during the extended lagoon management period, when SCWA would seek to maintain a shallow outlet channel rather than the deeper channel associated with artificial breaching. Collection of baseline information during the lagoon management period is included in the monitoring requirements described later in this document. SCWA's previous monitoring, as well as Twohy's daily counts of seals at the sandbar (Table 1) indicate that the number of seals at the haul-out declines from August to October, so management of the lagoon outlet channel (and managing the sandbar as a summer lagoon) would have little effect on haul-out use during the latter portion of the lagoon management period. The early portion of the lagoon management period coincides with the pupping season. Past monitoring during this period, which represents some of the longest beach closures in the late spring and early summer months, shows that the number of pinnipeds at the haul-out tends to fluctuate, rather than showing the more straightforward declines and increases associated with closures and openings seen at other times of year (Merritt Smith Consulting, 1998). This may indicate that seal haul-out usage during the pupping season is less dependent on bar status. As such, the number of seals hauled out from May through July would be expected to fluctuate, but is unlikely to respond dramatically to the absence of artificial breaching events. Regardless, any impacts to habitat resulting from SCWA's management of the estuary during the lagoon management period are not in relation to natural conditions, but rather in relation to conditions resulting from SCWA's discontinued approach of artificial breaching during this period.

In summary, there will be temporary physical alteration of the beach. However, natural opening and closure of the beach results in the same impacts to habitat; therefore, seals are likely

adapted to this cycle. In addition, the increase in rearing habitat quality has the goal of increasing salmonid abundance, ultimately providing more food for seals present within the action area.

Summary of Previous Monitoring

SCWA complied with the mitigation and monitoring required under the previous authorization. In accordance with the 2011 IHA, SCWA submitted a Report of Activities and Monitoring Results, covering the period of January 1 through December 31, 2011, as well as providing additional analysis of monitoring results from 2009-10. During the dates covered by the 2011 monitoring report, SCWA did not conduct any outlet channel implementation events or artificial breaching events, but did conduct associated biological and physical monitoring. During the course of these activities, SCWA did not exceed the take levels authorized under the 2011 IHA.

Baseline Monitoring – Baseline monitoring was performed to gather additional information regarding a possible relationship between tides, time of day, and the highest pinniped counts at the Jenner haul-out and to gain a better understanding about which specific conditions harbor seals may prefer for hauling out. Baseline monitoring of the peripheral haul-outs was conducted concurrently with monitoring at the mouth of the Russian River, and was scheduled for 2 days out of each month with the intention of capturing a low and high tide each in the morning and afternoon. No species of pinnipeds other than harbor seals were observed at the Jenner haul-out during the baseline monitoring; California sea lions were observed on two occasions in 2011 at one of the peripheral haul-outs located in the estuary. Figures 3-4 of SCWA's report show the mean number of harbor seal adults and pups (identified only during the pupping season) during twice-monthly baseline monitoring events. With some exceptions, the

highest means were observed from the end of the pupping season into molt in 2011. Comparison of count data between the Jenner and peripheral haul-outs did not show any obvious correlations (e.g., the number of seals occupying peripheral haul-outs compared to the Jenner haul-out did not necessarily increase or decrease as a result of disturbance caused by beach visitors). Please review SCWA's report for a more detailed discussion.

Estuary Management Activity Monitoring

No injuries or mortalities were observed during 2011, and harbor seal reactions ranged from merely alerting to crew presence to flushing from the beach. No estuary management events occurred during 2011; incidental take resulted only from physical and biological monitoring activities. Total observed take of marine mammals resulting from SCWA's estuary management activity during 2011 is shown in Table 3. Total observed take, by harassment only, from biological and physical monitoring prescribed by the BiOp, was 42 harbor seals. SCWA was authorized to take, by harassment only, 2,735 harbor seals, nineteen California sea lions, and fifteen northern elephant seals. While the observed take was significantly lower than the level authorized, it is possible that incidental take in future years could approach the level authorized. Actual take is dependent largely upon the number of water level management events that occur, which is unpredictable. Take of species other than harbor seals depends upon whether those species, which do not consistently utilize the Jenner haul-out, are present. The authorized take, though much higher than the actual take, was justified based on conservative estimated scenarios for animal presence and necessity of water level management. No significant departure from the method of estimation is used for the proposed IHA (see "Estimated Take by Incidental Harassment") for the same activities in 2012.

Table 3. Observed incidental harassment (Level B harassment only) of harbor seals during Russian River estuary management activities, 2011

Date	Event Type	Observed take	
		Age class ^a	Number
Jan 12	Beach topographic survey	Adult	4
Mar 9	Beach topographic survey	Adult	12
Apr 27	Beach topographic survey	Adult	1
May 18	Biological and physical monitoring in the estuary	Adult	4
Jul 18	Beach topographic survey	Adult	3
Sep 19	Beach topographic survey	Adult	6
Nov 16	Beach topographic survey	Adult	6
Dec 14	Beach topographic survey	Adult	6
Total			42

^a Pups are counted separately through June, after which all seals are counted as adults as it becomes more difficult to accurately age individuals.

Conclusions

The primary purpose of SCWA's Pinniped Monitoring Plan is to detect the response of pinnipeds to estuary management activities at the Russian River estuary. However, the following questions are also of specific interest:

1. Under what conditions do pinnipeds haul out at the Russian River estuary mouth at Jenner?
2. How do seals at the Jenner haul-out respond to activities associated with the construction and maintenance of the lagoon outlet channel and artificial breaching activities?
3. Does the number of seals at the Jenner haul-out significantly differ from historic averages with formation of a summer lagoon in the Russian River estuary?
4. Are seals at the Jenner haul-out displaced to nearby river and coastal haul-outs when the mouth remains closed in the summer?

The limited data available thus far – only three management events took place in 2010-11 and the duration of lagoon closure has not been dissimilar from the duration of closures that have been previously observed at the estuary – precludes drawing conclusions regarding the key

questions in SCWA's Monitoring Plan. However, baseline data collected from 2009-11 indicates that the highest numbers of pinnipeds are observed at the Jenner haul-out in July, during the molting season (see Table 3 of SCWA's Monitoring Report). The baseline monitoring effort is focused on understanding whether time of year, tides, and time of day affect the timing of use of the Jenner haul-out by harbor seals, which are found there throughout the year. Seasonal variation in the abundance of harbor seals at their haul-out locations is commonly observed throughout the range (Allen et al., 1989, Stewart and Yochem, 1994, Gemmer, 2002), and can typically be explained by changes in biological and physiological requirements throughout the year. Peak seal abundance occurring during molting season is likely a result of seals needing to spend more time on land in order to help facilitate the molting process. This annual peak is then followed by a decline in seal abundance, which is likely a result of individual seals decreasing the amount of time on the haul-out post-molt to spend more time foraging, and also coincides with the time that young of the year pups may disperse from their natal haul-out.

Overall, seals appear to utilize the Jenner haul-out throughout the tidal cycle. Seal abundance is significantly lower during the highest of tides when the haul-out is subject to an increase in wave overwash. Time of day had some affect on seal abundance at the Jenner haul-out, as abundance was greater in the afternoon hours compared to the morning hours. More analysis exploring the relationship of ambient temperature, incidence of disturbance, and season on time of day effects would help to explain why these variations in seal abundance occur. It is likely that a combination of multiple factors (e.g., season, tides, wave heights, level of beach disturbance) influence when the haul-out is most utilized.

SCWA has, thus far, implemented the lagoon outlet channel only one time (July 8, 2010). The response of harbor seals at the Jenner haul-out to the outlet channel implementation

activities (Question 2 above) was similar to the responses observed during artificial breaching events in 2010 and in previous years of monitoring the Jenner haul-out during breaching events (Merritt Smith Consulting, 1997, 1998, 1999, 2000; Sonoma County Water Agency and Merritt Smith Consulting, 2001). The harbor seals alerted to the sound of equipment on the beach and left the haul-out as the crew and equipment approached. Harbor seals hauled out on the beach while equipment was operating, left the beach when equipment and staff were leaving the beach, and began to return to the haul-out within 30 minutes to 3 hours of the work ending. Because the barrier beach reformed soon after outlet channel implementation and subsequently breached on its own, maintenance of the outlet channel was not necessary and monitoring of the continued response of pinnipeds at the Jenner haul-out to maintenance of the outlet channel and management of the lagoon for the duration of the lagoon management period has not yet been possible.

There is little information available to draw conclusions regarding Questions 3-4, as the duration of closure associated with the lagoon outlet channel implementation was not dissimilar from the duration of closures that have been previously observed at the estuary. Similarly, the lack of extended lagoon conditions precludes any conclusions regarding Question 4. Initial comparisons of peripheral (river and coastal) haul-out count data to the Jenner haul-out counts suggest that further information from subsequent estuary management activities are needed. For example, during the single lagoon outlet implementation in 2010, low seal abundance was recorded at Jenner and high seal abundance was recorded at Odin Cove. On the day after the lagoon outlet implementation seal abundance rose at Jenner and decreased at Odin Cove. This pattern is consistent with the idea that seals disturbed from the Jenner haul-out would

temporarily relocate to a nearby haul-out. However, these results are inconclusive, as SCWA is not able to track the movements of individual seals.

Proposed Mitigation

In order to issue an IHA under Section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to such activity, and other means of effecting the least practicable adverse impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for taking for certain subsistence uses.

SCWA has proposed to continue the following mitigation measures, as implemented during the previous IHA, designed to minimize impact to affected species and stocks:

- SCWA crews would cautiously approach the haul-out ahead of heavy equipment to minimize the potential for sudden flushes, which may result in a stampede – a particular concern during pupping season.
- SCWA staff would avoid walking or driving equipment through the seal haul-out.
- Crews on foot would make an effort to be seen by seals from a distance, if possible, rather than appearing suddenly, again preventing sudden flushes.
- During breaching events, all monitoring would be conducted from the overlook on the bluff along Highway 1 adjacent to the haul-out in order to minimize potential for harassment.
- A water level management event may not occur for more than 2 consecutive days unless flooding threats cannot be controlled.

In addition, SCWA has proposed mitigation measures specific to pupping season (March 15-June 30), as implemented in the previous IHA:

- SCWA will maintain a 1 week no-work period between water level management events (unless flooding is an immediate threat) to allow for an adequate disturbance recovery period. During the no-work period, equipment must be removed from the beach.

- If a pup less than 1 week old is on the beach where heavy machinery would be used or on the path used to access the work location, the management action will be delayed until the pup has left the site or the latest day possible to prevent flooding while still maintaining suitable fish rearing habitat. In the event that a pup remains present on the beach in the presence of flood risk, SCWA would consult with NMFS and CDFG to determine the appropriate course of action. SCWA will coordinate with the locally established seal monitoring program (Stewards' Seal Watch) to determine if pups less than 1 week old are on the beach prior to a breaching event.

- Physical and biological monitoring will not be conducted if a pup less than 1 week old is present at the monitoring site or on a path to the site.

For all activities, personnel on the beach would include up to two equipment operators, three safety team members on the beach (one on each side of the channel observing the equipment operators, and one at the barrier to warn beach visitors away from the activities), and one safety team member at the overlook on Highway 1 above the beach. Occasionally, there would be two or more additional people on the beach (SCWA staff or regulatory agency staff) on the beach to observe the activities. SCWA staff would be followed by the equipment, which would then be followed by an SCWA vehicle (typically a small pickup truck, the vehicle would be parked at the previously posted signs and barriers on the south side of the excavation location). Equipment would be driven slowly on the beach and care would be taken to minimize the number of shut downs and start-ups when the equipment is on the beach. All work would be

completed as efficiently as possible, with the smallest amount of heavy equipment possible, to minimize disturbance of seals at the haul-out. Boats operating near river haul-outs during monitoring would be kept within posted speed limits and driven as far from the haul-outs as safely possible to minimize flushing seals.

NMFS has carefully evaluated the applicant's mitigation measures as proposed and considered their effectiveness in past implementation to preliminarily determine whether they are likely to effect the least practicable adverse impact on the affected marine mammal species and stocks and their habitat. Our evaluation of potential measures includes consideration of the following factors in relation to one another: (1) the manner in which, and the degree to which, the successful implementation of the measure is expected to minimize adverse impacts to marine mammals, (2) the proven or likely efficacy of the specific measure to minimize adverse impacts as planned; (3) the practicability of the measure for applicant implementation, including consideration of personnel safety, and practicality of implementation.

Injury, serious injury, or mortality to pinnipeds would likely result from startling animals inhabiting the haul-out into a stampede reaction, or from extended mother-pup separation as a result of such a stampede. Long-term impacts to pinniped usage of the haul-out could result from significantly increased presence of humans and equipment on the beach. To avoid these possibilities, NMFS and SCWA have developed the previously described mitigation measures. These are designed to reduce the possibility of startling pinnipeds, by gradually apprising them of the presence of humans and equipment on the beach, and to reduce the possibility of impacts to pups by eliminating or altering management activities on the beach when pups are present and by setting limits on the frequency and duration of events during pupping season. During the past 15 years of flood control management, implementation of similar mitigation measures has

resulted in no known stampede events and no known injury, serious injury, or mortality. Over the course of that time period, management events have generally been infrequent and of limited duration. Based upon the SCWA's record of management at the mouth of the Russian River, as well as information from monitoring SCWA's implementation of the improved mitigation measures as prescribed under the previous IHA, NMFS has preliminarily determined that the proposed mitigation measures provide the means of effecting the least practicable adverse impacts on marine mammal species or stocks and their habitat.

Proposed Monitoring and Reporting

In order to issue an ITA for an activity, Section 101(a)(5)(D) of the MMPA states that NMFS must set forth "requirements pertaining to the monitoring and reporting of such taking". The MMPA implementing regulations at 50 CFR 216 indicate that requests for IHAs must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present.

The applicant has developed a Pinniped Monitoring Plan which describes the proposed monitoring efforts. This Monitoring Plan can be found on the NMFS website at <http://www.nmfs.noaa.gov/pr/permits/incidental.htm>. The purpose of this monitoring plan, which is carried out collaboratively with the Stewards of the Coasts and Redwoods (Stewards) organization, is to detect the response of pinnipeds to estuary management activities at the Russian River estuary. SCWA has designed the plan both to satisfy the requirements of the IHA, and to address the following questions of interest (as described previously):

1. Under what conditions do pinnipeds haul out at the Russian River estuary mouth at Jenner?

2. How do seals at the Jenner haul-out respond to activities associated with the construction and maintenance of the lagoon outlet channel and artificial breaching activities?
3. Does the number of seals at the Jenner haul-out significantly differ from historic averages with formation of a summer (May 15 to October 15) lagoon in the Russian River estuary?
4. Are seals at the Jenner haul-out displaced to nearby river and coastal haul-outs when the mouth remains closed in the summer?

In summary, past monitoring includes the following, which is proposed to continue should an IHA be issued:

Baseline Monitoring

Seals at the Jenner haul-out are counted twice monthly for the term of the IHA. This baseline information will provide SCWA with details that may help to plan estuary management activities in the future to minimize pinniped interaction. This census begins at local dawn and continues for 8 hours. All seals hauled out on the beach are counted every 30 minutes from the overlook on the bluff along Highway 1 adjacent to the haul-out using spotting scopes. Monitoring may conclude for the day if weather conditions affect visibility (e.g., heavy fog in the afternoon). Counts are scheduled for 2 days out of each month, with the intention of capturing a low and high tide each in the morning and afternoon. Depending on how the sandbar is formed, seals may haul out in multiple groups at the mouth. At each 30-minute count, the observer indicates where groups of seals are hauled out on the sandbar and provides a total count for each group. If possible, adults and pups are counted separately.

In addition to the census data, disturbances of the haul-out are recorded. The method for recording disturbances follows those in Mortenson (1996). Disturbances would be recorded on a

three-point scale that represents an increasing seal response to the disturbance (Table 4). The time, source, and duration of the disturbance, as well as an estimated distance between the source and haul-out, are recorded. It should be noted that only responses falling into Mortenson’s Levels 2 and 3 will be considered as harassment under the MMPA, under the terms of this proposed IHA.

Table 4. Seal response to disturbance

Level	Type of response	Definition
1	Alert	Seal head orientation in response to disturbance. This may include turning head towards the disturbance, craning head and neck while holding the body rigid in a u-shaped position, or changing from a lying to a sitting position.
2	Movement	Movements away from the source of disturbance, ranging from short withdrawals over short distances to hurried retreats many meters in length.
3	Flight	All retreats (flushes) to the water, another group of seals, or over the beach.

Weather conditions are recorded at the beginning of each census. These include temperature, percent cloud cover, and wind speed (Beaufort scale). Tide levels and estuary water surface elevations are correlated to the monitoring start and end times.

In an effort towards understanding possible relationships between use of the Jenner haul-out and nearby coastal and river haul-outs, several other haul-outs on the coast and in the Russian River estuary are monitored as well (see Figure 4 of SCWA’s application). The peripheral haul-outs are visited for 10-minute counts twice during each baseline monitoring day. All pinnipeds hauled out were counted from the same vantage point(s) at each haul-out using a high-powered spotting scope or binoculars.

Estuary Management Event Monitoring

Lagoon Outlet Channel – Should the mouth close during the lagoon management period, SCWA would construct a lagoon outlet channel as required by the BiOp. Activities associated

with the initial construction of the outlet channel, as well as the maintenance of the channel that may be required, would be monitored for disturbances to the seals at the Jenner haul-out.

A 1-day pre-event channel survey would be made within 1 to 3 days prior to constructing the outlet channel. The haul-out would be monitored on the day the outlet channel is constructed and daily for up to the maximum 2 days allowed for channel excavation activities. Monitoring would also occur on each day that the outlet channel is maintained using heavy equipment for the duration of the lagoon management period. Monitoring of outlet channel construction and maintenance would correspond with that described under the “Baseline” section previously, with the exception that management activity monitoring duration is defined by event duration, rather than being set at 8 hours. On the day of the management event, pinniped monitoring begins at least 1 hour prior to the crew and equipment accessing the beach work area and continues through the duration of the event, until at least 1 hour after the crew and equipment leave the beach.

In an attempt to understand whether seals from the Jenner haul-out are displaced to coastal and river haul-outs nearby when management events occur, other nearby haul-outs are monitored concurrently with monitoring of outlet channel construction and maintenance activities. This provides an opportunity to qualitatively assess whether these haul-outs are being used by seals displaced from the Jenner haul-out during lagoon outlet channel excavation and maintenance. This monitoring would not provide definitive results regarding displacement to nearby coastal and river haul-outs, as individual seals are not marked, but is useful in tracking general trends in haul-out use during lagoon outlet channel excavation and maintenance. As volunteers are required to monitor these peripheral haul-outs, haul-out locations may need to be prioritized if there are not enough volunteers available. In that case, priority would be

assigned to the nearest haul-outs (North Jenner and Odin Cove), followed by the Russian River estuary haul-outs, and finally the more distant coastal haul-outs.

Artificial Breaching Events – Pinniped responses to SCWA's artificial breaching activities were extensively monitored from 1996 to 2000 (Merritt Smith Consulting, 1997, 1998, 1999, 2000; SCWA and Merritt Smith Consulting, 2001). In accordance with the Russian River BiOp, SCWA may artificially breach the barrier beach outside of the summer lagoon management period, and may conduct a maximum of two such breaching during the lagoon management period, when estuary water surface elevations rise above seven feet. In that case, NMFS and CDFG may be consulted regarding potential scheduling of an artificial breaching event to open the barrier beach and reduce flooding risk.

Pinniped response to artificial breaching will be monitored at each such event during the term of the IHA. Methods would follow the census and disturbance monitoring protocols described in the "Baseline" section, which were also used for the 1996 to 2000 monitoring events (Merritt Smith Consulting, 1997, 1998, 1999, 2000; SCWA and Merritt Smith Consulting, 2001). The exception, as for lagoon management events, is that duration of monitoring is dependent upon duration of the event. On the day of the management event, pinniped monitoring begins at least 1 hour prior to the crew and equipment accessing the beach work area and continues through the duration of the event, until at least 1 hour after the crew and equipment leave the beach.

For all counts, the following information would be recorded in 30-minute intervals: (1) pinniped counts, by species; (2) behavior; (3) time, source and duration of any disturbance; (4) estimated distances between source of disturbance and pinnipeds; (5) weather conditions (e.g., temperature, wind); and (5) tide levels and estuary water surface elevation.

Monitoring During Pupping Season – The pupping season is defined as March 15 to June 30. Baseline, lagoon outlet channel, and artificial breaching monitoring during the pupping season will include records of neonate (pups less than 1 week old) observations. Characteristics of a neonate pup include: body weight less than 15 kg; thin for their body length; an umbilicus or natal pelage present; wrinkled skin; and awkward or jerky movements on land. SCWA will coordinate with the Seal Watch monitoring program to determine if pups less than 1 week old are on the beach prior to a water level management event.

If, during monitoring, observers sight any pup that might be abandoned, SCWA would contact the NMFS stranding response network immediately and also report the incident to NMFS' Southwest Regional Office and NMFS Headquarters within 48 hours. Observers will not approach or move the pup. Potential indications that a pup may be abandoned are no observed contact with adult seals, no movement of the pup, and the pup's attempts to nurse are rebuffed.

Staffing – Monitoring is conducted by qualified individuals, which may include professional biologists employed by NMFS or SCWA or volunteers trained by the Stewards' Seal Watch program (Stewards). All volunteer monitors are required to attend classroom-style training and field site visits to the haul-outs. Training covers the MMPA and conditions of the IHA, SCWA's pinniped monitoring protocols, pinniped species identification, age class identification (including a specific discussion regarding neonates), recording of count and disturbance observations (including completion of datasheets), and use of equipment. Pinniped identification would include harbor seal, California sea lion, and northern elephant seal, as well as other pinniped species with potential to occur in the area. Generally, SCWA staff and volunteers collect baseline data on Jenner haul-out use during the twice-monthly monitoring events. A schedule for this monitoring would be established with Stewards once volunteers are

available for the monitoring effort. SCWA staff monitors lagoon outlet channel excavation and maintenance activities and artificial breaching events at the Jenner haul-out, with assistance from Stewards volunteers as available. Stewards volunteers monitor the coastal and river haul-out locations during lagoon outlet channel excavation and maintenance activities.

Training on the MMPA, pinniped identification, and the conditions of the IHA is held for staff and contractors assigned to estuary management activities. The training includes equipment operators, safety crew members, and surveyors. In addition, prior to beginning each water surface elevation management event, the biologist monitoring the event participates in the onsite safety meeting to discuss the location(s) of pinnipeds at the Jenner haul-out that day and methods of avoiding and minimizing disturbances to the haul-out as outlined in the IHA.

Reporting

SCWA is required to submit a report on all activities and marine mammal monitoring results to the Office of Protected Resources, NMFS, and the Southwest Regional Administrator, NMFS, 90 days prior to the expiration of the IHA if a renewal is sought, or within 90 days of the expiration of the IHA otherwise. This annual report will also be distributed to California State Parks and Stewards, and would be available to the public on SCWA's website. This report will contain the following information:

- the number of pinnipeds taken, by species and age class (if possible);
- behavior prior to and during water level management events;
- start and end time of activity;
- estimated distances between source and pinnipeds when disturbance occurs;
- weather conditions (e.g., temperature, wind, etc.);
- haul-out reoccupation time of any pinnipeds based on post-activity monitoring;

- tide levels and estuary water surface elevation; and
- pinniped census from bi-monthly and nearby haul-out monitoring.

The annual report includes descriptions of monitoring methodology, tabulation of estuary management events, summary of monitoring results, and discussion of problems noted and proposed remedial measures.

Estimated Take by Incidental Harassment

SCWA is requesting, and NMFS is proposing, authorization to take harbor seals, California sea lions, and northern elephant seals, by Level B harassment only, incidental to estuary management activities. These activities, involving increased human presence and the use of heavy equipment and support vehicles, are expected to harass pinnipeds present at the haul-out through disturbance only. In addition, monitoring activities prescribed in the BiOp may harass additional animals at the Jenner haul-out and at the three haul-outs located in the estuary (Penny Logs, Patty's Rock, and Chalanchawi). Estimates of the number of harbor seals, California sea lions, and northern elephant seals that may be harassed by the proposed activities is based upon the number of potential events associated with Russian River estuary management activities and the average number of individuals of each species that are present during conditions appropriate to the activity. As described previously in this document, monitoring effort at the mouth of the Russian River has shown that the number of seals utilizing the haul-out declines during bar-closed conditions. Tables 5 and 6 detail the total number of estimated takes.

Events associated with lagoon outlet channel management would occur only during the lagoon management period, and are split into two categories: (1) initial channel implementation, which would likely occur between May and September, and (2) maintenance and monitoring of the outlet channel, which would continue until October 15. In addition, it is possible that the

initial outlet channel could close through natural processes, requiring additional channel implementation events. Based on past experience, SCWA estimates that a maximum of three outlet channel implementation events could be required. Outlet channel implementation events would only occur when the bar is closed; therefore, it is appropriate to use data from bar-closed monitoring events in estimating take (Table 2). Construction of the outlet channel is designed to produce a perched outflow, resulting in conditions that more closely resemble bar-closed than bar-open with regard to pinniped haul-out usage. As such, bar-closed data is appropriate for estimating take during all lagoon management period maintenance and monitoring activity. As dates of outlet channel implementation cannot be known in advance, the highest daily average of seals per month – from July 2010 – is used in estimating take. For maintenance and monitoring activities associated with the lagoon outlet channel, which would occur on a weekly basis following implementation of the outlet channel, the average number of harbor seals for each month was used.

Artificial breaching activities would also occur during bar-closed conditions; however, data collected specifically during bar-closed conditions exists only for April through November (Table 2). These data may be used for estimating take associated with artificial breaching occurring during those months. For activity occurring from December through March, monitoring data that are not specific to bar conditions may be used for estimating take (Table 1). Harbor seal numbers from 2009-11 SCWA baseline surveys were used to estimate take associated with artificial breaching from December to March as this was the most recent information available for those months.

For monthly topographic surveys on the barrier beach SCWA believes that only a small percentage (estimated at 10 percent) of seals hauled out are likely to be disturbed by this activity,

which involves two people walking along the barrier beach with a survey rod. During these surveys a pinniped monitor is positioned at the Highway 1 overlook and is able to notify the surveyors via radio when any seals on the haul-out begin to alert to their presence. At this time the surveyors retreat slowly away from the haul-out, typically resulting in no disturbance. The 10 percent is a conservative allowance for the occasions where a few seals may move or flush following their initial alert, despite the surveyors retreat. The number of seals expected to be encountered is based on the average monthly number of seals hauled out as recorded during baseline surveys conducted by SCWA in 2009-11 (Table 1).

For electromagnetic imaging profiles associated with the jetty study, the estimate of take was calculated similar to that of the topographic surveys described above. The field work for these profiles will be conducted in a similar manner to the topographic surveys with a monitor present. In addition, these imaging profiles will be conducted outside of the harbor seal pupping season, in an effort to reduce disturbance to nursing females and young pups. As noted previously, SCWA believes that, due to the nature of the activity and mitigation measures to be implemented, other components of the jetty study are unlikely to result in incidental take.

For biological and physical habitat monitoring activities in the estuary, it was assumed that pinnipeds may be encountered once per event and flush from a river haul-out. The potential for harassment associated with these events is limited to the three haul-outs located in the estuary. In past experience, SCWA typically sees no more than a single harbor seal at these haul-outs, which consist of scattered logs and rocks that often submerge at high tide.

Table 5. Estimated number of harbor seal takes resulting from Russian River estuary management activities

Number of animals expected to occur ^a	Number of events ^{b,c}	Potential total number of individual animals that may be taken
Lagoon Outlet Channel Management (May 15 to October 15)		
Implementation: 105 ^d	Implementation: 3	Implementation: 315

Maintenance and Monitoring: May: 103 June: 100 July: 105 Aug: 17 Sept: 19 Oct: 22	Maintenance: May: 1 June-Sept: 4/month Oct: 1	Maintenance: 1,089
	Monitoring: June-Sept: 2/month Oct: 1	Monitoring: 504
		Total: 1,908
Artificial Breaching		
Oct: 22	Oct: 2	Oct: 44
Nov: 11	Nov: 2	Nov: 22
Dec: 45	Dec: 2	Dec: 90
Jan: 96	Jan: 1	Jan: 96
Feb: 89	Feb: 1	Feb: 89
Mar: 146	Mar: 1	Mar: 146
Apr: 173	Apr: 1	Apr: 173
May: 103	May: 1	May: 103
	11 events maximum	Total: 763
Topographic and Geophysical Beach Surveys		
Jan: 114 Feb: 93 Mar: 142 Apr: 128 May: 100 Jun: 134 Jul: 217 Aug: 98 Sep: 46 Oct: 48 Nov: 86 Dec: 32	1 topographic survey/month 2 geophysical surveys/month, Sep-Dec; 1/month, Jul-Aug, Jan-Feb Surveys considered to have potential for take of 10 percent of animals present	Jan: 22 Feb: 18 Mar: 14 Apr: 13 May: 10 Jun: 13 Jul: 44 Aug: 20 Sep: 15 Oct: 15 Nov: 27 Dec: 9 Total: 220
Biological and Physical Habitat Monitoring in the Estuary		
1 ^e	65	65
Total		2,735

^a For events occurring from April through November, average daily number of animals corresponds with data from Table 2. For events occurring from December through March, average daily number of animals corresponds with 2009-11 data from Table 1.

^b For implementation of the lagoon outlet channel, an event is defined as a single, two-day episode. It is assumed that the same individual seals would be hauled out during a single event. For the remaining activities, an event is defined as a single day on which an activity occurs. Some events may include multiple activities.

^c Number of events for artificial breaching derived from historical data. The average number of events for each month was rounded up to the nearest whole number; estimated number of events for December was increased from one to two because multiple closures resulting from storm events have occurred in recent years during that month. These numbers likely represent an overestimate, as the average annual number of events is six.

^d Although implementation could occur at any time during the lagoon management period, the highest daily average per month from the lagoon management period was used.

^e Based on past experience, SCWA expects that no more than one seal may be present, and thus have the potential to be disturbed, at each of the three river haul-outs.

Table 6. Estimated number of California sea lion and elephant seal takes resulting from Russian River estuary management activities

Species	Number of animals expected to occur ^a	Number of events ^{b,c}	Potential total number of individual animals that may be taken
Lagoon Outlet Channel Management (May 15 to October 15)			
California sea lion (potential to encounter once per event)	1	3	3
Northern elephant seal (potential to encounter once per event)	1	3	3
Artificial Breaching			
California sea lion (potential to encounter once per event, Sep-Apr)	1	10	10
Northern elephant seal (potential to encounter once per event, Dec-Mar)	1	5	5
Topographic and Geophysical Beach Surveys			
California sea lion (potential to encounter once per event, Sep-Apr)	1	18	18
Northern elephant seal (potential to encounter once per event, Dec-Mar)	1	8	8
Biological and Physical Habitat Monitoring in the Estuary			
California sea lion (potential to encounter once per event, Sep-Apr)	1	8	8
Northern elephant seal (potential to encounter once per event, Dec-Mar)	1	4	4
Total			
California sea lion			39
Elephant seal			20

Negligible Impact and Small Numbers Analysis and Determination

NMFS has defined ‘negligible impact’ in 50 CFR 216 as "...an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival."

In determining whether or not authorized incidental take will have a negligible impact on affected species stocks, NMFS considers a number of criteria regarding the impact of the proposed action, including the number, nature, intensity, and duration of Level B harassment take that may occur. Although SCWA’s estuary management activities may harass pinnipeds hauled out at the mouth of the Russian River, as well as those hauled out at several locations in the estuary during recurring monitoring activities, impacts are occurring to a small, localized group of animals. No injury, serious injury, or mortality is anticipated, nor is the proposed action likely to result in long-term impacts such as permanent abandonment of the haul-out. Seals will

likely become alert or, at most, flush into the water in reaction to the presence of crews and equipment on the beach. However, breaching the sandbar has been shown to increase seal abundance on the beach, with seals quickly re-inhabiting the haul-out following cessation of activity. In addition, the implementation of the lagoon management plan may provide increased availability of prey species (salmonids). No impacts would be expected at the population or stock level.

No pinniped stocks known from the action area are listed as threatened or endangered under the ESA or determined to be strategic or depleted under the MMPA. Recent data suggests that harbor seal populations have reached carrying capacity; populations of California sea lions and northern elephant seals in California are also considered healthy.

The proposed number of animals taken for each species of pinnipeds can be considered small relative to the population size. There are an estimated 34,233 harbor seals in the California stock, 238,000 California sea lions, and 124,000 northern elephant seals in the California breeding population. Based on extensive monitoring effort specific to the affected haul-out and historical data on the frequency of the specified activity, NMFS is proposing to authorize take, by Level B harassment only, of 2,956 harbor seals, 39 California sea lions, and twenty northern elephant seals, representing 8.6, 0.02, and 0.02 percent of the populations, respectively. However, this represents an overestimate of the number of individuals harassed over the duration of the proposed IHA, because these totals represent much smaller numbers of individuals that may be harassed multiple times.

The proposed action would not be likely to cause injury, serious injury, or mortality to any harbor seal pup, nor would it impact mother-pup bonding. The peak of pupping season occurs during May, when few management activities are anticipated. However, any management

activity that is required during pupping season will be delayed in the event that a pup less than 1 week old is present on the beach. As described previously in this document, harbor seal pups are precocious, and mother-pup bonding is likely to occur within minutes. Delay of events would further ensure that mother-pup bonding is not interfered with.

Based on the foregoing analysis, behavioral disturbance to pinnipeds at the mouth of the Russian River would be of low intensity and limited duration. To ensure minimal disturbance, SCWA will implement the mitigation measures described previously, which NMFS has preliminarily determined will serve as the means for effecting the least practicable adverse impact on the relevant marine mammal stocks or populations and their habitat. NMFS preliminarily finds that SCWA's estuary management activities will result in the incidental take of small numbers of marine mammals, and that the requested number of takes will have no more than a negligible impact on the affected species and stocks.

Impact on Availability of Affected Species for Taking for Subsistence Uses

There are no relevant subsistence uses of marine mammals implicated by this action.

Endangered Species Act (ESA)

There are no ESA-listed marine mammals found in the action area; therefore, no consultation under the ESA is required. As described elsewhere in this document, SCWA and the Corps consulted with NMFS under section 7 of the ESA regarding the potential effects of their operations and maintenance activities, including SCWA's estuary management program, on ESA-listed salmonids. As a result of this consultation, NMFS issued the Russian River Biological Opinion (NMFS, 2008), including Reasonable and Prudent Alternatives, which prescribes modifications to SCWA's estuary management activities.

National Environmental Policy Act (NEPA)

In compliance with the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.), as implemented by the regulations published by the Council on Environmental Quality (40 CFR parts 1500-1508), and NOAA Administrative Order 216-6, NMFS prepared an Environmental Assessment (EA) to consider the direct, indirect and cumulative effects to the human environment resulting from issuance of the original IHA to SCWA for the specified activities and found that it would not result in any significant impacts to the human environment. NMFS signed a Finding of No Significant Impact (FONSI) on March 30, 2010. NMFS has reviewed SWCA's application for a renewed IHA for ongoing estuary management activities for 2012 and the 2011 monitoring report. Based on that review, NMFS has determined that the proposed action follows closely the IHAs issued and implemented in 2010 and 2011 and does not present any substantial changes, or significant new circumstances or information relevant to environmental concerns which would require a supplement to the 2010 EA or preparation of a new NEPA document. Therefore, NMFS has preliminarily determined that a new or supplemental EA or Environmental Impact Statement is unnecessary, and will, after review of public comments determine whether or not to reaffirm its FONSI. The 2010 EA is available for review at <http://www.nmfs.noaa.gov/pr/permits/incidental.htm>.

Proposed Authorization

As a result of these preliminary determinations, NMFS proposes to authorize the take of marine mammals incidental to SCWA's estuary management activities, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated.

Dated: March 8, 2012.

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